"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

LEBEDEV, Ya.S.

Calculation of the electron paramagnetic resonance spectra on an electronic computer. Part 2: Asymmetric lines. Zhur.strukt.khim. 4 no.1:22-27 Ja-F '63. (MIRA 16:2)

1. Institut khimicheskoy fiziki AN SSSR.
(Spectrum analysis) (Electronic computers)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

SHUVALOV, V.F.; LEBEDEV, Ya.S.; TSEPALOV, V.F.; SHLYAPINTOKH, V.Ya.

Electron paramagnetic resonance spectra of peroxide radicals in the liquid phase. Zhur. fiz. khim. 38 no.5:1287 My '64. (MIRA 18:12)

1. Institut khimicheskoy fiziki AN SSSR. Submitted March 28, 1963.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

LEBEDEV, Ya. S.

Dissertation defended for the degree of Candidate of Chemical Sciences at the Joint Academic Council on Chemical Sciences; Siberian Branch

"Structure and Reactions of Free Radicals in Irradiated Polymers (Electron Paramagnetic Resonance Investigation Using Electronic Computers for Spectra Analysis)."

Vestnik Akad. Nauk, No. 4, 1963, pp 119-145

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

ACCESSION NR: AP3006755 S/0190/63/005/009/1339/1344

AUTHORS: Neyman, M. B.; Fedoseyeva, T. S.; Chubarova, G. V.; Buchachenko, A. L.; Lebedev, Ya. S.

TITLE: A study of the radicals in irradiated polyformaldehyde

SOURCE: Vy*sokomolekulyarny*ye soyedineniya, v. 5, no. 9, 1963, 1339-1344

TOPIC TAGS: free radical, polyformaldehyde, electron paramagnetic resonance, chain polymer, gamma irradiation, polymer chain/ EPR 2 IKhF spectrometer

ABSTRACT: Structural and kinetic characteristics of free radicals in irradiated polyformaldehyde (PFA) were investigated. Powdered PFA was placed in soldered and evacuated ampules and was subjected to gamma radiation from a Co^{60} source. The study of electron paramagnetic resonance (EPR) radical spectra at low temperatures was conducted on PFA irradiated at 77K with doses of 5×10^6 and 1×10^7 roentgens. Spectra were recorded on the spectrometer EPR-2 IKhF. A special ampule was used for room temperature radiation experiments. The ampule was connected to vacuum equipment to allow varying gas concentrations around the specimens. Means were provided for controlling the ambient air temperature. Test results indicated: 1) two types

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ACCESSION NR: AP3006755

of radicals are present, the stable ~O - CH - O~ radical and short-lived radicals from polymer chain rupture; 2) for the stable radical, defrosting of internal motions of the molecular chains occurs at temperatures below -196K. The recombination reaction is described by a second-order equation with the constant rate of recombination given by $k = 10^{-7} \exp(-19\,000/RT)$ cm^3/sec. The value of the annihilation rate constant of radicals is higher in oxygen than in a vacuum and depends linearly upon the pressure: $k = 10^{-9} k_p^{-1} [O_2] \exp(-17\,000/RT)$ cm^3/sec. Orig. art. has: 4 formulas, 8 equations, and 6 figures.

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR (Institute of Chemical Physics, AN SSSR)

SUBMITTED: 19Feb62

ENCL: 00

SUB CODE: GC

NO REF SOV: 008

OTHER: 003

Card 2/2

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

LEBEDEV, Ya.S.; TSVETKOV, Yu.D.; VOYEVODSKIY, V.V.

Free radical reactions in irradiated polytetrafluoroethylene. Part 4: Reactions of fluoroalkyl radicals with molecules from the gaseous phase. Vysokom. soed. 5 no.10:1500-1506 O '63. (MIRA 17:1)

1. Institut khimicheskoy fiziki AN SSSR i Institut khimicheskoy kinetiki i goreniya Sibirskogo otdeleniya AN SSSR.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

LEBEDEV, Ya.S.; TSVETKOV, Yu.D.; VOYEVODSKIY, V.V.

Free radical reactions in irradiated polytetrafluoroethylene. Part 5: Discussion of the reaction mechanism. Vysokom.soed. 5 no.11:1608-1614 N '63. (MIRA 17:1)

1. Institut khimicheskoy fiziki AN SSSR i Institut khimicheskoy kinetiki i goreniya Sibirskogo otdeleniya AN SSSR.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

LEBEDEV, Ya.S.; TIKHOMIROVA, N.N.; VOYEVODSKIY, V.V., otv. red.: TERENT'YEVA, E.N., redaktor

[Atlas of electron paramagnetic resonance spectra] Atlas spektrov elektronnogo paramagnitnogo rezonansa. Moskva, Izd-vo "Nauka." No.2. [Theoretically calculated symmetrical spectra with a complex hyperfine structure] Teoreticheskie rasschitannye simmetrichnye spektry so slozhnoi sverkhtonkoi strukturoi. 1964. 197 p. (MIRA 17:7)

1. Akademiya nauk SSSR. Institut khimicheskoy fiziki. 2. Laboratoriya khimicheskoy radiospektroskopii Instituta khimicheskoy fiziki AN SSSR (for Lebedev).

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

ACCESSION NR: AP4016517 S/0195/64/005/001/0064/0070

AUTHOR: Lebedev, Ya. S.; Tsepalov, V. F.; Shlyapintokh, V. Ya.

TITLE: Measuring the stationary peroxide radical concentration in the cumene oxidation reaction by the EPR method

SOURCE: Kinetika i kataliz, v. 5, no. 1, 1964, 64-70

TOPIC TAGS: peroxide radical, concentration determination, cumene oxidation, peroxide radical formation, liquid phase oxidation, recombination rate, cobalt stearate catalyst, azobisisobutyronitrile, dicyclohexylpercarbonate, EPR analysis, cumyl peroxide

ABSTRACT: A study of the liquid phase oxidation of hydrocarbons showed that the peroxide radical recombination rate constant is approximately the same for olefinic materials, and 1-2 orders higher for aromatic hydrocarbons. Cumyl peroxide was selected for further study since it has the smallest recombination rate constant. The oxidation of cumene was then effected in the resonator

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

ACCESSION NR: AP4016517

of the EPR spectrometer. The reaction was catalyzed with cobalt stearate or initiated with azobisisobutyronitrile or with dicylohexylpercarbonate. In changing the concentration of the latter from 0.02-0.55 mol./l., at 68-90C, the initiation rate changed by a factor of 50, from 5×10^{-6} to 2.4×10^{-4} mol/l·sec. The EPR spectra, determined by the cumyl peroxide radicals, are identical, although oxidation was initiated by different radicals. The peroxide radical concentration measured in this work essentially approaches the values calculated from the known rate of initiation and the recombination rate constant. The slightly lower measured values are explained as due to experimental errors such as insufficient O_2, incorrect placement of the ampoule in the resonator, etc. Orig. art. has: 2 figures, 4 equations, 1 formula

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR (Institute of Chemical Physics AN SSSR)

SUBMITTED: 26Apr62 DATE ACQ: 18Mar64 ENCL: 00
SUB CODE: CH, PH NO REF SOV: 007 OTHER: 013

Card 2/2

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

L 26657-65 EWG(j)/EWT(1)/EWT(m)/EPF(c)/EWA(d)/EPR/EWP(j)/EEC(t)/EWP(t)/EWP(b)
Pc-4/Pr-4/Ps-4/Pad/Peb IJP(c)/RPL RM/WW/JFW/JD/HW/WB/GS
ACCESSION NR: AT5002264 S/0000/64/000/000/0190/0195

AUTHOR: Lebedev, Ya. S.; Tsepalov, V. F.; Shlyapintokh, V. Ya.

TITLE: Use of electron paramagnetic resonance for the study of active centers in liquid-phase oxidation reactions

SOURCE: Soveshchaniye po fizicheskim metodam issledovaniya stroyeniya molekul organicheskikh soyedineniy i khimicheskikh protsessov. Frunze, 1962. Trudy. Frunze, Izd-vo Ilim, 1964, 190-195

TOPIC TAGS: electron paramagnetic resonance, liquid phase oxidation, active center, EPR spectrum, peroxide radical, cumene oxidation

ABSTRACT: This investigation was undertaken to determine the steady concentrations of peroxide radicals in liquid-phase oxidation reactions by means of EPR spectra. Experiments were conducted on an IKhF-2 spectrometer with a high-frequency modulation field. The instrument recorded the first derivative of the EPR line of the peroxide radical, simultaneously with the signal from the standard sample (carbon). The reaction was conducted directly in an EPR resonator of the spectrometer. For this purpose, an ampule of cumene was placed in the resonator and heated with a stream of hot air. Oxidation was catalyzed by cobalt stearate or initiated by azodiisobutyronitrile (I) or dicyclohexylpercarbonate (II).

Card 1/2

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ACCESSION NR: AT5002264

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Temperature was measured with a thermocouple immersed in the ampule. Oxygen was bubbled through the sample. Free radicals were observed and identified, from their spectra, as cumene peroxide radicals. Experiments on the measurement of the steady-state concentration of cumene peroxide radicals were conducted at 68-90C and with concentrations of I of 0.02-0.55 mole/liter. Initiation speeds varied from 5×10^{-6} to 2.4×10^{-4} mole/liter.sec. With I, the speed was calculated from $w_i=1.2\times1.58\times10^{15}\cdot e^{-30800/RT}$. Absolute values of the experimental concentrations of peroxide radicals lay within 5×10^{15}--4×10^{16} radicals/cm^3. Calculated and measured values were close. Orig. art. has: 1 table, 2 figures and 3 formulas.

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR (Chemical physics institute, AN SSSR)

SUBMITTED: 19Jun64 ENCL: 00 SUB CODE: GC, MP

NO REF SOV: 005 OTHER: 011

Card 2/2

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

ZHURAVLEVA, T.S.; LEBEDEV, Ya.S.; SHUVALOV, V.F.

Distribution of spin density in radicals of nitrile derivatives. Zhur. strukt. khim. 5 no.5:786-789 S-O '64 (MIRA 18:1)

1. Fiziko-khimicheskiy institut imeni L.Ya. Karpova i Institut fizicheskoy khimii AN SSSR.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

L 29108-65 EWG(j)/EWT(m)/EPF(c)/EPF(n)-2/EWP(j)/EWA(h)/EWA(l) Pc-4/Pr-4/
Peb/Pu-4 RPL WW/JFW/GG/RM
ACCESSION NR: AP5002728 S/0195/64/005/006/1020/1027

AUTHORS: Mikhaylov, A. I.; Lebedev, Ya. S.; Buben, N. Ya.

TITLE: Stepwise recombining of free radicals in irradiated organic substances

SOURCE: Kinetika i kataliz, v. 5, no. 6, 1964, 1020-1027

TOPIC TAGS: irradiation, fast electron, free radical, kinetics, decay scheme, glycine, malonic acid, acetic acid, palmitic acid, naphthalene/ EPR 2 IKh F AN SSSR spectrometer

ABSTRACT: A systematic investigation performed on free radicals obtained by irradiation with fast electrons showed that under isothermal conditions these radicals recombine in a stepwise manner. The general characteristics of the process were determined by the study of radical decays in glycine, malonic acid, acetic acid, palmitic acid, phenol, naphthalene, etc., involving rapid and slow crystallizations of liquids in boiling nitrogen or at 0.3 - 0.5 degrees/minutes cooling. Nonpaired spins were measured with the EPR-2 IKhF AN SSSR spectrometer between -160 and +150C. Stepwise recombining occurs in wide temperature ranges: glycine (-140 to +130C), malonic acid (-140 to +70C), phenol (-160 to +5C). The concentration of radicals is a function of temperature and not of the thermal treatment (see Fig. 1

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L 29108-65

ACCESSION NR: AP5002728

3

on the Enclosure), while the time of attaining the condition of equilibrium may vary from hours to a few seconds. Uniform crystals and frozen substances take longer. V. V. Voyevodskiy and Yu. N. Molin took part in discussions of the results, I. I. Chkheidze provided the necessary substances.

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR (Institute of Chemical Physics AN SSSR)

SUBMITTED: 11Dec63 ENCL: 01 SUB CODE: OC, NP

NO REF SOV: 018 OTHER: 009

Card 2/3

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

L 29108-65

ACCESSION NR: AP5002728

ENCLOSURE: 01

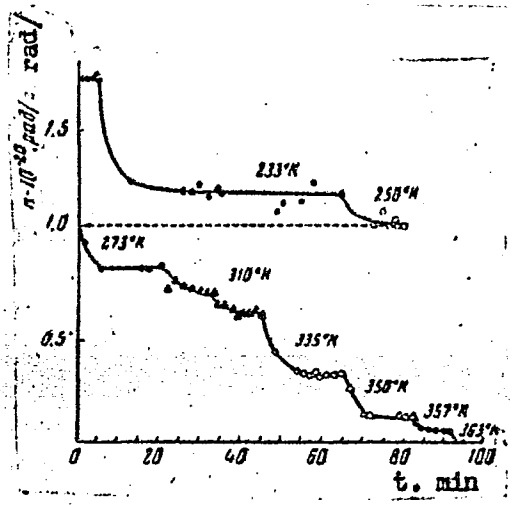

Fig. 1. Kinetics of the decay of free radicals in irradiated malonic acid at various temperatures. (powders, D = 5 M rad)

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

ACCESSION NR: AP4017634 S/0190/64/006/002/0241/0246

AUTHORS: Fedoseyeva, T. S.; Kuz'minskiy, A. S.; Neyman, M. B.; Buchachenko, A. L.; Lebedev, Ya. S.; Chertkova, V. F.

TITLE: Effect of three-dimensional network on free radical annihilation process in elastomers

SOURCE: Vy*sokomolekulyarny*ye soyedineniya, v. 6, no. 2, 1964, 241-246

TOPIC TAGS: free radical, sodium-butadiene, thermal vulcanizate, EPR spectra, irradiated specimen, chain segment, activation energy, pre-exponential factor

ABSTRACT: The kinetic properties of free radicals formed in the γ-irradiation of thermally vulcanized sodium-butadiene of various degrees of cross-linkages have been investigated by the EPR method. The thermal vulcanizate was obtained by preliminary heating of the purified polymer in the press at 220C and under 50 t/cm^2 pressures from 5 to 60 hours. The specimen was irradiated in vacuum at -196C from a Co^{60} source of 25 Mrad dose. The EPR spectra of the irradiated specimen were obtained on the EPR-2 IKhF AN SSSR instrument at -196C in 20 to 100° intervals. It is shown that formation of a three-dimensional network prolongs the lifetime of the

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ACCESSION NR: AP4017634

captured radicals. The rate of annihilation of these radicals decreases with increase in the number of cross-linkages. The rate for the same network density is limited by the mobility of the various chain segments. Furthermore, the activation energies and pre-exponential factors for the annihilation of free radicals in "mobile" and "sluggish" regions of the chain have been determined. Orig. art. has: 5 figures and 1 table.

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR (Institute of Chemical Physics AN SSSR); Nauchno-issledovatel'skiy institut rezinovoy promy*shlennosti (Scientific Research Institute of the Rubber Industry)

SUBMITTED: 13Nov62 DATE ACQ: 23Mar64 ENCL: 00

SUB CODE: CH NO REF SOV: 005 OTHER: 000

Card 2/2

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

ACCESSION NR: AP4042191 S/0190/64/006/007/1308/1312

AUTHOR: Kuz'minskiy, A. S., Fedoseyeva, T. S., Lebedev, Ya. S., Buchachenko, A. L., Zhuravskaya, Ye. V.

TITLE: Nature of the free radicals formed in irradiated polydimethylsiloxanes

SOURCE: Vy*sokomolekulyarny*ye soyedineniya, v. 6, no. 7, 1964, 1308-1312

TOPIC TAGS: polydimethylsiloxane, phenylene derivative, hydroxyphenylene derivative, irradiation, free radical, Gamma irradiation, electron paramagnetic resonance, EPR spectrum, polymer radiation effect

ABSTRACT: The mechanism of action of irradiation on polydimethylsiloxane and its phenylene- and hydroxyphenylene- containing derivatives during the formation of free radicals was investigated by subjecting the polymers to γ-irradiation (Co^{60} = 10000 g. equiv. Ra.) at -196C in vacuum at a dose of 25 Mrad. Electron paramagnetic resonance spectra showed that two types of radicals (singlet and triplet) are formed corresponding to

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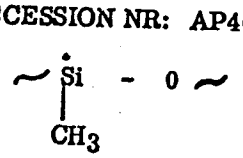
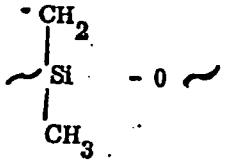
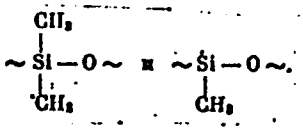
ACCESSION NR: AP4042191



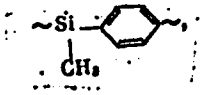
and



The formula for determining the relative concentration of both types of radicals in polydimethylsiloxane is given as:



In phenylene-containing polydimethylsiloxane, the radical



is found, the spectrum of which is determined by the interaction of the unpaired electron

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ACCESSION NR: AP4042191

with the ortho and meta protons of the phenylene ring. The kinetic properties of these free radicals were found to depend on the mobility of the polymer chain segments. "The authors wish to express their gratitude to A. L. Klebanskiy and S. B. Dolgaplosk for their continual attention and assistance in this work." Orig. art. has: 3 figures, 1 formula and 5 chemical structures.

ASSOCIATION: Nauchno-issledovatel'skiy institut rezinovoy promy*shlennosti (Scientific Research Institute of the Rubber Industry); Institut khimicheskoy fiziki AN SSSR (Institute of Chemical Physics, AN SSSR)

SUBMITTED: 28Aug63

SUB CODE: OC

NO REF SOV: 002

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OTHER: 002

Card 3/3

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

L 36664-65 EWT(1)/EEC(t)/EEC(b)-2 Pi-4 IJP(c)
ACCESSION NR: AP5007384 S/0286/65/000/004/0040/0040

AUTHOR: Lebedev, Ya. S.; Taranukha, O. M.

TITLE: Transducer for spectrometers of electron paramagnetic resonance. Class 21, No. 168347

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 4, 1965, 40

TOPIC TAGS: spectrometer transducer, electron paramagnetic resonance, EPR spectrometer

ABSTRACT: This Author Certificate introduces a transducer for a spectrometer of electron paramagnetic resonance. The transducer consists of a cavity resonator and an ampul containing the specimen. To localize the shf field within the specimen, a spiral made of a conductive substance is wound around the ampul. Orig. art. has: 1 figure. [DW]

ASSOCIATION: none

SUBMITTED: 18Mar64 ENCL: 00 SUB CODE: EC,NP

NO REF SOV: 000 OTHER: 000 ATD PRESS: 3221

Card 1/1

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

L 56001-65 EWG(j)/EWT(m)/EPF(c)/EWP(j)/T/EWA(h)/EWA(l) Pc-4/Pr-4 RM
ACCESSION NR: AP5015835 UR/0030/65/000/006/0107/0110

45
27
B

AUTHOR: Lebedev, Ya. S. (Candidate of chemical sciences)

TITLE: Seminar on radiochemistry and physiconuclear methods in chemistry

SOURCE: AN SSSR. Vestnik, no. 6, 1965, 107-110

TOPIC TAGS: chemical conference, radiation chemistry, nuclear physics, inorganic chemistry, organic chemistry, nuclear physics conference

ABSTRACT: A seminar devoted to applications of nuclear physics in chemistry and to the problems of radiochemistry was held on 16 and 17 March 1965 at the Institute of Chemical Physics, Academy of Sciences USSR. The seminar was jointly sponsored by the Department of General and Industrial Chemistry, the Department of Nuclear Physics, the Scientific Council on the Chemistry of High-Energy Particles, and the State Committe on the Use of Atomic Energy, USSR. Thirteen review papers and 12 short notes were presented at the seminar, which attracted over 500 scientists. Meetings were held to present general information on basic problems of radiation and nuclear chemistry and to illustrate these problems with short notes on the latest

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developments in the field. In the first two meetings the following papers on radiochemical problems were noted.

V. L. Tal'roze (Institute of Chemical Physics, Academy of Sciences USSR) reviewed problems connected with the elementary radiochemical processes and singled out vibrational energy transfer and several other processes in condensed state as the least known processes.

A. K. Pikayev (Institute of Physical Chemistry) reported on the solvated electron, which is one of the newest chapters of inorganic radiochemistry. Recently, the formation of the solvated electron was proved directly and constants for its reactions with acceptors were determined. These facts were felt to be of great importance for the theory of radiolysis of polar systems.

N. A. Bakh (Institute of Electrochemistry, Academy of Sciences USSR) presented a review of the problems of organic radiochemistry, stressing the problem of correlation between molecular structure and radiation stability. The role of the EPR method was particulary emphasized in solving the problems.

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ACCESSION NR: AP5015835

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V. L. Karpov (Karpov Scientific Research Physicochemical Institute) treated the radiochemistry of polymers. Nuclear radiation has an accelerating effect on polymerization, especially in solid phase at low temperature. Ionizing radiation is being used for synthesis of graft polymers and modification of the properties of macromolecular compounds. The problem of radiation stability of synthetic and natural polymers was indicated as being particularly acute.

V. I. Spitsyn (Institute of Physical Chemistry, Academy of Sciences USSR) elaborated on the effect of the radioactivity of solid substances on their catalytic activity. Continuous irradiation of catalytic systems by means of radioactive, type S^{35} isotopes incorporated into the systems made possible acceleration of chemical processes, which does not occur by external irradiation. The mechanism of catalysis with internal irradiation was proposed by the author and provoked a lively discussion.

T. V. Tsetskhladze devoted his paper to chemical reactions initiated by nuclear transformations of the type $Li^6(n,\alpha)$ T or He(n, p) T. For example,

Card 3/6

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tritium "hot" atoms thus produced interact with hydrocarbons adsorbed on the surface of irradiated substance. A communication by a team of authors [unnamed] on the preparation of oxidic and fluorinated compounds of noble gases by β decay of iodine and bromine served to illustrate chemical reactions caused by radioactive decay of nuclei.

B. G. Dzantiyev (Institute of Chemical Physics) described energetic chemonuclear processes based on transformation of the energy of fission fragments into the energy of endothermic chemical reactions. The feasibility of chemonuclear processes, such as nitrogen fixation, was confirmed experimentally, but many connected problems still remain unsolved.

The second part of the seminar was devoted to the utilization of isotopes and radiation in the study of the chemical properties and transormations of substances.

V. I. Gol'danskiy (Institute of Chemical Physics) discussed the problems of resonance spectroscopy (Mossbauer effect), the use of which is being constantly expanded in various fields of chemistry. The recoilless nuclear gamma-

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resonance fluorescence was given as one of the most striking examples of the successful application of nuclear physics in chemical studies. This is the only method of structural chemistry which gives the most important data on intramolecular electric and magnetic fields, and the nature of the chemical bond in complex and organoelemental compounds.

Biological applications of the nuclear gamma-resonance spectroscopy, treated in another paper, include recording of biomechanical vibrational processes.

V. V. Golikov (Joint Institute of Nuclear Research), M. G. Zemlyanov (Kurchatov Institute of Atomic Energy), and others investigated by physicochemical properties of crystals and liquids by means of the scattering of slow neutrons.

V. G. Firsov (Institute of Theoretical and Experimental Physics) reviewed the chemistry of the new "lightest" atoms containing a mu-meson or positron

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

L 56001-65

ACCESSION NR: AP5015835

in place of a proton. An example of the application of these atoms is the measuring of the absolute rate constants of ultra-rapid chemical processes. Measuring was made possible by the "physical standard of time" of the order of 10^{-9} sec, which is based on the presence of positronium in the system.

ASSOCIATION: none

SUBMITTED: 00	ENCL: 00	SUB CODE: GC, NP
NO REF SOV: 000	OTHER: 000	ATD PRESS: 4027-F

Card 6/6

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

LEBEDEV, Ya.S.; TARANUKHA, O.M.

Use of moderating packings in the recording of electron paramagnetic resonance spectra. Teoret. i eksper. khim. 1 no.2:260-264 Mr-Ap '65. (MIRA 18:7)

1. Institut khimicheskoy fiziki AN SSSR, Moskva.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

L 39695-65 EFF(c)/EWP(j)/EWT(m)· Pc-4/Pr-4 RPL MM

ACCESSION NR: AP5006772 S/0195/65/006/001/0048/0055

25
24
13

AUTHOR: Mikhaylov, A. I.; Lebedev, Ya. S.; Buben, N. Ya.

TITLE: "Step" recombination of free radicals in irradiated organic compounds. II. Examination of a formal-kinetic model and of a method of evaluating kinetic constants

SOURCE: Kinetika i kataliz, V. 6, no. 1. 1965, 48-55

TOPIC TAGS: recombination, recombination reaction, free radical, organic material

ABSTRACT: Several models of the "step" recombination of free radicals in a solid phase are discussed. The results of a formal-kinetic calculation are compared with experimental data. An experiment is proposed to permit judgment as to the spatial distribution of free radicals. The following hypothetical models are advanced to explain the origin of a quasi-stationary "step" in the recombination of radicals in a solid phase: 1) radicals located in zones (crystallites) with different softening temperatures; 2) radicals fixed in traps with different energies of stabilization; and 3) the probability of the recombination of a pair of radicals depends on the distance between them. "In conclusion the authors consider it their pleasant duty to express gratitude to V. V. Voyevodskiy and Yu. M. Molin for their frequent

Card 1/2

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

L 39695-65

ACCESSION NR: AP5006772

analysis of the results of the work." Orig. art. has: 2 figures, 1 table, 12 equations.

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR (Institute of Chemical Physics, Academy of Sciences SSSR)

SUBMITTED: 11Dec63 ENCL: 00 SUB CODE: GC, OC

NO REF SOV: 008 OTHER: 006

Card 2/2 pb

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

LEBEDEV, Ya.S.

Diffusion kinetics of bimolecular reactions in the solid phase. Reaction of immobile centers with mobile components from the heterophase. Kin.i kat. 6 no.3:522-531 My-Je '65. (MIRA 18:10)

1. Institut khimicheskoy fiziki AN SSSR.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

LEBEDEV, Ya.S., kand.khim.nauk

Uses of nuclear physics in chemistry and problems of radiation chemistry; scientific session. Vest.AN SSSR 35 no.6:107-110 Je '65. (MIRA 18:8)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

L 2930-66 EWT(m)/EPF(c)/EWP(j)/T RPL WW/JWD/RM UR/0020/65/164/001/0140/0143

ACCESSION NR: AP5023371

AUTHORS: Mikhaylov, A. I.; Gaponova, I. S.; Lebedev, Ya. S.

TITLE: Migration of radical groups in the solid phase

SOURCE: AN SSSR. Doklady, v. 164, no. 1, 1965, 140-143

TOPIC TAGS: free radical, radical migration, epr spectroscopy, free radical formation, free radical generation

ABSTRACT: The migration of free radicals in several organic powders was investigated. The radicals were generated on the surface of the powders by means of a high frequency Tesla coil discharge, and the accumulation of free radicals was observed by epr spectroscopy. The experimental results are presented graphically (see Fig. 1 on the Enclosure) and are compared with a theoretical expression for the accumulation of free radicals. The theoretical expression

$$\frac{n}{n_s} \simeq \frac{l_s}{L} th(n_s k_2 t) + \mathrm{Re}\left\{\frac{\lambda}{L}\sqrt{k_m(t-\tau_s)}\right\}$$

is derived on the assumption that the migration of valence takes place via a "hopping" mechanism and that the radicals decay according to a second order rate law. Here n and n_s are the total and the limiting surface concentration of free

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L 2930-66

ACCESSION NR: AP5023371

radicals respectively, l_s is the depth at which ionizing electrons give rise to free radicals, L the specific surface area, λ - the lattice constant, k_2 - the second rate constant for radical decay, K_m - the hopping frequence, $\tau_s = 1/k_2 n_s$ and t the time. It is concluded that the observed results are best explained in terms of a free radical migration mechanism. Values for estimated migration rates of free radicals, the limiting concentration n_s, depth of migration for a period of 1 hour, and K_m for a number of organic powders are tabulated. Orig. art. has: 1 table and 3 graphs.

ASSOCIATION: Institut khimicheskoy fiziki, Akademii nauk SSSR (Institute for Chemical Physics, Academy of Sciences SSSR)

SUBMITTED: 11Feb65 ENCL: 01 SUB CODE: OC, SS

NO REF SOV: 012 OTHER: 004

Card 2/3

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

L 2930-66

ACCESSION NR: AP5023371

ENCLOSURE: 01

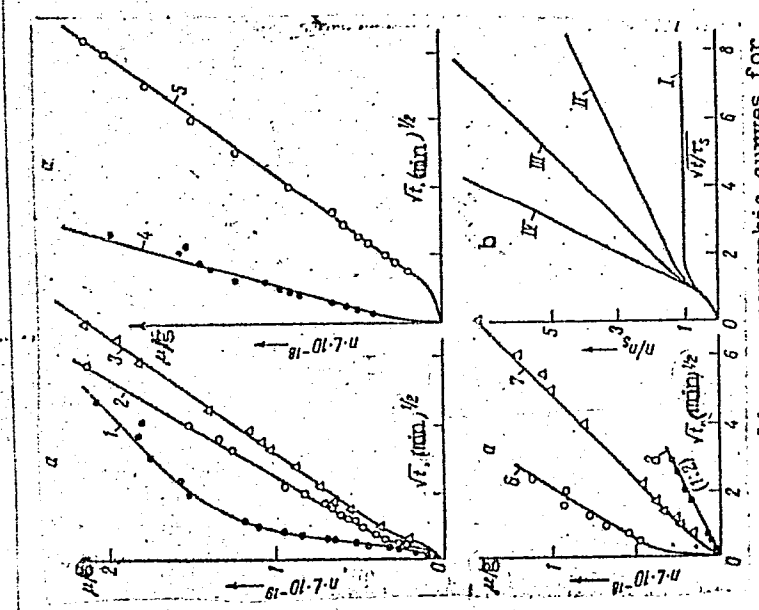

Fig. 1. a- linear anamorphic curves for radical accumulation during surface generation in different organic compounds. 1- paraffin, 2- stearic acid, 3- polyethylene, 4- uracil, 5- thymine, 6- glycine, 7- phenol, 8- benzene; b- theoretically calculated for $\lambda/L\sqrt{k_m/\tau}$; I - 0; II - 0.5; III - 1; IV - 2.

Card 3/3

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

LEBEDEV, Ye.

Development of Soviet transportation and communications ("Soviet transportation and communications." Reviwed by E. Lebedev). Vop. ekon. no.2:82-88 F '58. (MIRA 11:3)
(Communication and traffic)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

GATAULLIN, M.F., red.; PETROV, K., red.; LEBEDEV, Ye.A., red.; RUMYANTSEV, V.P., red.; SMILYANSKAYA, I.M., red.; KOZLOVSKAYA, G.M., red.; BERESLAVSKAYA, L.Sh., tekhn. red.

[Modern Lebanon; a handbook]Sovremennyi Livan; spravochnik. Moskva, Izd-vo vostochnoi lit-ry, 1963. 222 p. (MIRA 16:2)

1. Akademiya nauk SSSR. Institut narodov Azii.
(Lebanon--Guidebooks)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

KUVYKIN, Aleksandr Stepanovich; BELORUSSOV, Vladimir Olegovich; LEBEDEV, Yevgeniy Alekseyevich; KAMENEV, N.P., red.; ZAYNULLINA, G.Z., tekhn. red.

[Controlling circulation losses in Bashkir oil fields] Bor'ba s pogloshcheniiami promyvochnoi zhidkosti na neftepromyslakh Bashkirii. Ufa, Bashkirskoe knizhnoe izd-vo, 1961. 97 p. (MIRA 14:6)
(Bashkiria—Oil well drilling fluids)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

KUVYKIN, Aleksandr Stepanovich; GEL'FMAN, Gari Nisonovich; LEBEDEV, Yevgeniy Alekseyevich

[Using high-strength gypsum in drilling] Primenenie vysokoprochnogo gipsa v burenii. Moskva, Nedra, 1964. 122 p. (MIRA 17:5)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

B/128/61/000/012/003/004
A004/A127

AUTHORS: Spasskiy, A.G.; Pikunov, M.V.; Kurdyumov, A.V.; Lebedev, Ye.A.

TITLE: Removing films from metals by filtration

PERIODICAL: Liteynoye proizvodstvo, no. 12, 1961, 22 - 24

TEXT: The authors point out that quite a number of alloys during melting and pouring are considerably contaminated with oxide films which reduce their technological and mechanical properties and the quality of components. They enumerate a number of metal purification processes and report on tests which were carried out to remove films from aluminum alloys by filtration. These tests were carried out during the semi-continuous casting of ingots of the Д16 (D16) and АК6 (AK6) alloys by A.G. Spasskiy, M.V. Pikunov and A.V. Kurdyumov. Prior to the casting process, filtration was studied by simulating metal filtration with water with pieces of paper representing the films. Lumps of crushed magnesite bricks were used as filtering agent. The filtration results showed that a lump filter of 50 mm thickness holds back 50 - 70% of particles 1 x 1 mm in size, while a filter of 100 mm thickness detains 90 - 95% of such particles. During the filtration of the D16 alloy, melted in a graphite cruci-

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

Removing films from metals by filtration

ble at 750°C, the lump filter was placed in the spout, which was preheated to 700°C. 5 - 7 ingots 50 mm in diameter and 150 mm high were cast in succession. The number of films and their total area were counted on the fracture. Three lots of ingots were cast - without filtration, with filtration through lumps of magnesite brick of 5 - 10 lump size and with filtration through lumps of a melt consisting of equal parts calcium and magnesium fluorides of the same lump size. As a result of these tests it was found that ingots cast without filtration contained 12% impurities, those with magnesite filtration 3% and with fluoride filtration 1%. This filtration method was tested under service conditions with the AK6 alloy, the tests being carried out by Yu.I. Birevaya, L.A. Kats, S.A. Baranovskiy and A.M. Babarikina. Eleven ingots 110 mm in diameter were cast at a rate of 15 cm/min directly from the melting furnace at 750°C. The following filtering material was used: magnesite brick, an alloy of equal parts of calcium and magnesium fluorides, and magnesite brick impregnated with liquid flux of the 2 compositions: No. 1 - 40% NaF, 60% Na_3AlF_6; No. 2 - 64% NaF, 36% NaCl. The following filtering results were obtained: average impurity without filtration 5%; with filtration through magnesite 1.5%; with filtration through magnesite impregnated with No. 1 flux 0.9%; idem with No. 2 flux 0.5% and filtration through the fluoride alloy 0.3%. Although this filtration meth-

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

Removing films from metals by filtration

od yielded good results the metal purity was still insufficient, which could be explained by the fact that the metal, after passing through the filter, ran in an open flow, thus oxidizing again and contaminating with film. Another test series was carried out under industrial conditions with the participation of P. Ye. Khodakov, V.V. Solov'yeva, M.G. Kasheyev and I.I. Ger'yev, where the filtration system was changed in such a way as to prevent the oxidation of the metal after filtration. Under these conditions the average contamination amounted to 1.7% without filtration and 0.24% with filtration. The results obtained make it possible to conclude that filtration through lump filters in the semi-continuous casting of aluminum alloys improves the metal purity considerably as regards film. The filter should be placed in the distributing funnel, while crushed magnesite brick, either with or without flux impregnation, and fluoride alloys can be used as filtering material. Magnesite and fluoride alloys are heavier than aluminum and there is no chemical reaction up to 1,000°C. Further tests with lump filters carried out during pressure casting by M.V. Pikunov, Ye.Ya. Lebedev and A.G. Spasskiy showed the applicability of this filtration method also for pressure casting. Various Al-alloys - АЛ9В (AL9V), АЛ34 (AL34), АЛ14Ч (AL14Ch) and others - were cast in this way at the Moskovskiy zavod malolitrazhnykh avtomobiley (Moscow Small-Displacement Car Plant). Crushed magne-

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APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

Removing films from metals by filtration

site brick in lumps of 12 - 15 mm, calcinated prior to use at 900°C was used as filtering material. Also the filtration of the ЦАМ4-1 (TsAM 4-1) zinc alloy resulted in a considerably improved metal purity. There are 8 figures, 1 table and 7 references: 4 Soviet-bloc and 3 non-Soviet-bloc.

Card 4/4

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

LEBEDEV, Ye.A.; GUDINA, V.N.

Lubrication of die-casting dies. Lit.proizv. no.11:41-42 N '61. (MIRA 14:10)

(Metal-working lubricants) (Die casting)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

38046
S/128/62/000/005/001/005
A004/A127

18.1410

AUTHORS: Lebedev, Ye.A.; Gudina, V.N.

TITLE: The new AL 15-8 K (AL15-8K) aluminum alloy for pressure casting

PERIODICAL: Liteynoye proizvodstvo, no. 5, 1962, 9 - 10

TEXT: The authors report on tests being carried out at the NIITAVTOPROM, Minskiy motovelozavod (Minsk Motorcycle Plant) and MZMA, to investigate the casting and mechanical properties of the AL10B (AL10V), AL3B (AL3V), AL9B (AL9V), MKUC (MKTsS) and AL154 (AL154) alloys used in pressure casting. Alloys of the Al-Si-Cu system with σ_b up to 30 - 35 kg/mm^2 and ternary alloys with an Si-content of 5, 6, 7, 8, 9 and 10% and a Cu-content of 1, 2, 3, 4, 5 and 6% were tested, these alloys being produced on the basis of the secondary AL154 alloys. The highest σ_b = 26 kg/mm^2 and δ = 2% were achieved with an alloy of 7 -9% Si and 2.5 - 4.5% Cu which was conditionally designated AL15-8K. A graph shows the dependence of σ_b and δ % on the temperature of the metal to be poured. It was found that both these values grow with an increasing temperature of the alloy being poured. For purifying the molten metal from suspended

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APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

The new AL15-8K aluminum alloy for pressure casting

S/128/62/000/005/001/005
A004/A127

inclusions, apart from deadmelting, fluxing and chlorinating, the metal can be filtered through a lump filter, the filtering layer consisting of crushed magnesite brick lumps of 12 - 15 mm size. The authors present a number of graphs and test results which were obtained in investigating the properties of the AL15-8K alloy and point out that this alloy, containing on the average 7 - 9% Si, 2.5 - 4.5% Cu and up to 0.6% Mg, 1.2% Zn, 1.5% P and 0.5% Mn possesses pressure-casting properties which are superior to the standard AL3, AL9 and AL10 alloys. There are 8 figures.

Card 2/2

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

LEBEDEV, Ye.A.; GUDINA, V.N.

New lubricants for die-casting molds for casting aluminum parts.
Avt.prom. 28 no.2:36-38 F '62. (MIRA 15:2)

1. Nauchno-issledovatel'skiy institut avtomobil'noy promyshlennosti i Moskovskiy zavod malolitrazhnykh avtomobiley.
(Die casting--Equipment and supplies)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

LEBEDEV, Ye.A.; BANATOV, V.P.; CHELOMBIYEV, B.K.; MATVEYEV, D.F.

Investigating clay-mud circulation-loss zones in Stavropol Territory under conditions of increased bottom temperatures. Burenie no.11:8-11 '64. (MIRA 18:5)

1. Stavropol'skiy filial Groznenskogo neftyanogo nauchno-issledovatel'skogo instituta i ob"yedineniye "Stavropol'neftegaz".

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

BODYANSKIY, Vadim Lazarevich; SHAGAL', Vladimir Eduardovich; LEBEDEV, Ye.A., otv. red.; DZHUR, I.M., red.

[Modern Libya; a reference book] Sovremennaia Liviia; spravochnik. Moskva, Nauka, 1965. 300 p.
(MIRA 19:1)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

KHITAROV, N.I.; ARSEN'YEVA, R.V.; LEBEDEV, Ye.B.

Experiments on the fusion of granite in the presence of water. Geokhimiia no.5:380-384 '57. (MIRA 12:3)

1. V.I. Vernadsky Institute of Geochemistry and Analytical Chemistry, Academy of Sciences, USSR, Moscow.
(Granite) (Fusion)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

SOV/7-59-5-1/14

AUTHORS: Khitarov, N. I., Lebedev, Ye. B., Rengarten, Ye. V., Arsen'yeva, R. V.

TITLE: Comparative Characterization of the Solubility of Water in Basaltic and Granitic Melts (Sravnitel'naya kharakteristika rastvorimosti vody v bazal'tovom i granitnom rasplavakh)

PERIODICAL: Geokhimiya, 1959, Nr 5, pp 387 - 396 (USSR)

ABSTRACT: The laboratory assistants P. V. Boytsov and E. Ye. Filippova took part in the experiments. An apparatus which had been worked out by B. A. Korndorf and N. I. Khitarov was used. This apparatus is described in short (Figs 1 and 2). Pressures of 1000, 2000 and 3000 kg/cm^2 and temperatures of 900 and 1000° were used for the investigation. The samples were heated first up to 105°, then up to 1200° in order to determine water; the weighed portion amounted to 200-370 mg, the weighing out of the Pregel tube was carried out on the microbalance ADV-200. The sample material was pulverized rock, i.e. basalt of the side crater Kirgurich of the Klyuchevskiy volcano from the eruption in 1932, put at the authors' disposal by V. I. Vlodavtsev, Laboratoriya vulkanologii Akademii nauk SSSR (Laboratory of Volcanology of the Academy of Sciences, USSR); further-

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more El'dzhurtinskiy granite, a porphyritic biotite granite of the northern Caucasus. The rocks were investigated under the microscope, the chemical composition is given (Table 1). A total of almost 30 determinations were carried out. A series with basalt was investigated 2 1/2 hours at 900° and 3000 kg/cm^2; the chilled melts contained an average of 3.2% water. The samples of the second series were heated 1 hour up to 1000°, then 2 1/2 hours up to 900°, the pressure amounted again up to 3000 kg/cm^2. The basalt of these samples contained an average of 3.6%, granite 6.7% water (Table 2). Further investigations were carried out under different conditions (Table 3). The basalt melt contains 5.4% water at 1000° and 3000 kg/cm^2, the granite melt 5.7% water. It is possible that the water content does not depend on the chemical composition at higher temperatures (Fig 9). A comparison with the values of Goranson (Refs 1 and 2) in figure 5 shows that the values of Goranson are higher by approximately one half . The values of the authors are probably more realistic, as confirmed by the curve of Johns and Burnham (Ref 4). The chilled melts were investigated under the

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microscope; granite was transformed into light-grey glass with cracks and a small quantity of hematite (Fig 6), basalt into glass and hornblende with a small quantity of magnetite (Fig 7). Pyroxene insets were almost not changed at all, the olivines had a hornblende seam (Fig 8). Since hornblende usually does not occur in basalt, as well as in diabases and dolerites, it is assumed that the basaltic magmas have only low water content. Furthermore it is assumed that basaltic magma consists at 900° and 3000 kg/cm^2 of a comparatively easily mobile melt and olivine- and pyroxene insets. There are 9 figures, 3 tables, and 10 references, 3 of which are Soviet.

ASSOCIATION: Institut geokhimii i analiticheskoy khimii im. V. I. Vernadskogo AN SSSR, Moskva (Institute of Geochemistry and Analytical Chemistry imeni V. I. Vernadskiy AS USSR, Moscow)

SUBMITTED: April 15, 1959

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

KHITAROV, N.I.; RYZHENKO, B.N.; LEBEDEV, Ye.B.

Determination of the electric conductivity of the solutions of sodium carbonate and bicarbonate under hydrothermal conditions. Geokhimiia no.1:41-47 Ja '63. (MIRA 16:9)

1. Vernadsky Institute of Geochemistry and Analytical Chemistry, Academy of Sciences, U.S.S.R., Moscow.
(Sodium carbonate—Electric properties)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

KHITAROV, N.I.; KADIK, A.A.; LEBEDEV, Ye.B.

Estimation of the thermal effect of water separation from melts of acid composition based on the albite-water system. Geokhimiia no.7:619-630 Jl '63. (MIRA 16:9)

1. Vernadsky Institute of Geochemistry and Analytical Chemistry, Academy of Sciences, U.S.S.R., Moscow.
(Thermochemistry) (Albite) (Water)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

USSR/Minerals Apr 49
Coal
Fuels - Storage

PA 42/49T79

"An Experiment in Storing Moscow Coals at Thermoelectric Stations of the Transcaucasian Research Institute of Building Construction," Ye. D. Lebedev, Chief, Thermoelec Stations, Transcaucasian Inst of Bldg Constr, 1 p

"Za Ekonomiyu Topliva" Vol V, No 4

Experiments in storing Moscow coals showed that large piles covered with an ash layer 5 - 8 cm thick were most efficient. Ash layer prevented spontaneous combustion, and large pile reduced moisture of coal.

42/49T79

USSR/Minerals (Cmtd) Apr 49

Transportation, covering, and unloading of coal has been almost completely mechanized using caterpillar tractors, bulldozers, and bucket cranes.

42/49T79

LEBEDEV, YE. D.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

L 46284-65 EWT(1)/EPF(n)-2/EWG(m)/EPA(w)-2 Pz-6/Po-4/Pab-10/Pi-4 IJP(c) WW/GS/AT

ACCESSION NR: AT5009048 S/0000/64/001/000/0088/0092

AUTHOR: Lebedev, Ye. F. (Novosibirsk) 47 B+1

TITLE: Radiophysical method of investigation of ionized gas jets

SOURCE: Konferentsiya po avtomaticheskomu kontrolyu i metodam elektricheskikh izmereniy. 3d, Novosibirsk, 1961. Avtomaticheskiy kontrol' i metody elektricheskikh izmereniy; trudy konferentsii, t. 1: Metody elektricheskikh izmereniy. Analiz i sintez sistem upravleniya i kontrolya. Elementy ustroystv avtomaticheskogo kontrolya (Automatic control and electrical measuring techniques; transactions of the conference, v. 1: Electrical measuring techniques. Analysis and synthesis of regulation and control systems. Elements of automatic control devices). Novosibirsk, Redizdat Sib. otd. AN SSSR, 1964, 88-92

TOPIC TAGS: plasmatron, microwave flame measurement, plasma diagnostics 21

ABSTRACT: The author describes microwave measurements of a flame stream from a plasmatron (flame source in which a flame jet is produced by blowing air at an arc) by a method in which a cavity tuned to resonance to one of its natural modes is detuned by the flame stream and its Q decreased. The measurements were similar to

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ACCESSION NR: AT5009048

those made by F. B. Adler (J. Appl. Phys. v. 25, p. 903, 1954). A block diagram of the apparatus is shown in Fig. 1 of the Enclosure. The ionized gas jet flows along the cavity axis and is limited in diameter by a glass or quartz tube. The cavity and the preamplifier are placed in the box of the plasmatron, and the remaining part of the apparatus is on the outside. Typical results for one of the plasmatron modes are given. The accuracy with which the frequency shifts can be measured is within 5%. Orig. art. has: 3 figures and 5 formulas.

ASSOCIATION: None

SUBMITTED: 13Apr64 ENCL: 01 SUB CODE: ME

NR REF SOV: 003 OTHER: 004

Card 2/3

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YESENOVSKIY-LASHKOV, Yu.K.; LEBEDEV, Ye.I.

Stand for testing steel surfaces in the pinion-shaft pair of a motor-vehicle gearbox. Avt.prom. 28 no.8:32-33 Ag '62. (MIRA 16:3)

1. Gosudarstvennyy soyuznyy ordena Trudovogo Krasnogo Znameni nauchno-issledovatel'skiy avtomobil'nyy i avtomotornyy institut.
(Motor vehicles--Transmission devices) (Testing machines)

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

VRUBLEVSKIY, V.I., inzh.; KRYZHANOVSKIY, O.M., inzh.; PANASYUK, L.S., inzh.; RAVICH, K.S., inzh.; SHCHUR, A.G., inzh.; GARNAZHENKO, I.O., inzh.; LEBEDEV, Ye.I., inzh.; PSAREV, A.M., inzh.; SALATSINSKIY, V.V., inzh.; SHOKAREV, V.A., inzh.

Over-all mechanization and automation of the compsition of charge. Mashinostroenie no.6:45-47 N-D '62. (MIRA 16:2)

1. Institut liteynogo proizvodstva, AN UkrSSR (for Vrublevskiy, Kryzhanovskiy, Panasyuk, Ravich, Shchur). 2. Toretskiy mashinostroitel'nyy zavod (for Garnazhenko, Lebedev, Psarev, Salatsinskiy, Shokarev).
(Cast iron--Metallurgy) (Automation)

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

L 8211-66 EWT(1) IJP(c)

ACC NR: AP5013866 SOURCE CODE: UR/0368/65/002/004/0377/0380

AUTHOR: Lebedev, Ye. I.; Pittsyna, I. G.; Sakharov, A. V.; Blokh, A. A.; Ivanova, N. I.; Fedoseyev, A. M.

ORG: Leningrad Society of Optical Equipment Enterprises (Leningradskoye ob"yedineniye optiko-mekhanichskikh predpriyatiy)

TITLE: New instruments for molecular spectral analysis in the infrared region of the spectrum [Paper presented at the Plenary Session of the 16th Conference on Spectroscopy, 2 February 1965]

SOURCE: Zhurnal prikladnoy spektroskopii, v. 2, no. 4, 1965, 377-380

TOPIC TAGS: IR photometer, IR microscope, IR optic system

ABSTRACT: The authors describe several new instruments developed by the Leningrad Society of Optical Equipment Enterprises in 1963-1964: the IKS-22 spectrophotometer for mass analysis; the IKS-23 spectrophotometer for research on radiation from liquid specimens; the PMO-2 microscope attachment for a single-beam spectrophotometer for use in studying specimens such as fibers and crystals; and the KRT-1 variable-thickness cell for studying liquids. A photograph of each instrument is given together with a detailed description of its operation and technical characteristics. A diagram of the optical system for the IKS-23 instrument is given and explained. Orig. art. has: 5 figures.

SUB CODE: OP/ SUBM DATE: 00/ ORIG REF: 000/ OTH REF: 000

UDC: 535.853

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

LEBEDEV, Ye.L.

Upper Jurassic flora of the Zeya River and its significance in defining the boundary between the Upper Jurassic and the Lower Cretaceous continental sediments in the Amur River basin. Dokl. AN SSSR 150 no.1:149-151 My '63. (MIRA 16:6)

1. Geologicheskiy institut AN SSSR. Predstavleno akademikom V.N.Sukachevym.
(Zeya Valley--Paleobotany) (Amur Valley--Geology, Stratigraphic)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

LEBEDEV, Yevgeniy Leonidovich; VAKHRAMEYEV, V.A., otv. red.; PEYVE, A.V., akademik, glavnyy red.; KUZNETSOVA, K.I., red.; MENNER, V.V., red.; TIMOFEYEV, P.P., red.

[Late Jurassic flora of the Zeya River and the Jurassic-Cretaceous boundary.] Pozdneiurskaia flora reki Zei i granitsa iury i mela. Moskva, Nauka, 1965. 141 p. illus. (Akademiia nauk SSSR. Geologicheskii institut. Trudy, no.125) (MIRA 18:11)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

LEBEDEV, Ye. M. (VIEV and All-Union Sci. Res. Inst. of the Vet. Service)

"The Significance of an Individual Tick in the Transmission of the Agent of Piroplasmosis of Horses" (with I.V. Abramov, A.A. Tsaprun).

SO: VET, Vol 27, No 3, 1950.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

LEBEDEV, Ye.M.

Method of taking large samples of organisms overgrowing ship bottoms. Trudy Gidrobiol. ob-va 9:367-369 '59. (MIRA 12:9)

1. Laboratoriya tekhnicheskoy biologii Instituta okeanologii AN SSSR.
(Hydrobiological research)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

LEBEDEV, Ye.M.

Variability of form in some sessible marine organisms. Biul. MOIP.Otd.biol. 64 no.1:158-159 Ja-F '59. (MIRA 12:7)
(Marine fauna)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

LEBEDEV, Yefim Mikhaylovich [Lebediev, IU.M.], nauchnyy sotr.; VOROB'YEV, Nikolay Yevgen'yevich [Vorobiov, M.], nauchnyy sotr.; VINNITSKIY, S.[Vinnyts'kyi, S.]., red.; MOLCHANOVA,T., tekhn. red.

[Over-all mechanization of crop management] Kompleksna mekhanizatsiia dohliadu za posivamy. Odesa, Odes'ke knyzhkove vydvo, 1959. 30 p. (MIRA 15:7)

1. Izmayl'skaya opytnaya stantsiya Vsesoyuznogo nauchno- issledovatel'skogo instituta kukuruzy (for Lebedev, Vorob'yev).
(Ukraine--Corn (Maize)) (Agricultural machinery)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

BLAZHEVSKIY, Ye.V., dvazhdy Geroy Sotsialisticheskogo Truda; VOVCHENKO, I.V., kand. sel'khoz. nauk, zasl. agronom Ukr.SSR; VOROB'YEV, N.Ye., st. nauchn. sotr.; GESHELE, E.E., doktor biol. nauk, prof.; ZUBRITSKIY, A.A., agronom; KISEL'GOF, Z.S., inzh., zasl. mekhanizator sel'skogo khoz. Ukr.SSR; KLYUCHKO, P.F., kand. sel'khoz. nauk; KORCHAGIN, A.Ye.; LEBEDEV, Ye.M., st. nauchn. sotr.; NASYPAYKO, V.M., kand. sel'khoz.nauk; PIKUS, G.P., kand. sel'khoz.nauk; REKACH, V.N., doktor sel'khoz. nauk, prof.; SPIVAK, I.I., zootekhnik; TEMCHENKO, L.V., kand. sel'khoz. nauk; FEDULAYEV, A.A., agronom; YAKOVENKO, V.A., kand. tekhn.nauk; KITAYEV, I.A., kand. sel'khoz. nauk, red.; MUSIYKO, A.S., akademik, red.; VINNITSKIY, S.P., red.; MOLCHANOVA, T.N., tekhn. red.

[For high corn yields] Za bol'shuiu kukuruzu. [By] E.V. Blazhevskii i dr. Odessa, Odesskoe knizhnoe izd-vo, 1962. 173 p. (MIRA 16:7)

1. Zven'yevoy kolkhoza im. Gor'kogo Kotovskogo rayona na Odesshchine (for Blazhevskiy). 2. Glavnyy agronom sovkhoza "Bessarabskiy" (for Korchagin). 3. Ukrainskaya akademiya sel'skokhozyaystvennykh nauk (for Musiyko).
(Ukraine--Corn (Maize))

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

GONCHARENKO, V.M., inzhener; LEBEDEV, Ye.M., inzhener.

Casting steel gearwheels. Lit. proizv. no.3:25-26 Mr '56.
(Steel castings) (Gearing) (MLRA 9:7)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

KHAIT, A.I.; LEBEDEV, Ye.M.; KIRIYEVSKIY, V.D.

Experience in using chemically hardening mold and core mixtures based on water glass. Stroi. i dor. mashinostr. 2 no.6:34-36 Je '57. (MLRA 10:6)
(Molding (Founding)) (Soluble glass) (Sand, Foundry)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

LEBEDEV, Ye.M.

KIRIYEVSKIY, V.D., inzh.; LEBEDEV, Ye.M., inzh.

New techniques used in casting sprocket wheels without aftermachining of teeth. Stroi. i dor.mashinostr. 3 no.3:28-30 Mr '58. (MIRA 11:3)
(Gearing) (Metal castings)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

KIRIYEVSKIY, V.D., inzh.; LEBEDEV, Ye.M., inzh.

Mechanizing the feed of water glass. Stroi. i dor. mashinostr. 3 no. 7:28 Jl '58. (MIRA 11:8)
(Soluble glass)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

KIRIYEVSKIY, V.D., inzh.; LEBEDEV, Ye.M., inzh.

Molding in quick-drying molds. Stroi. i dor. mashinostr. 4 no.3:32-33 Mr '59. (MIRA 12:4)
(Molding (Founding))

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

LEBEDEV, Ye.N.

Fouling of ships sailing in the Sea of Azov and the Kerch Strait. (MIRA 15:1)
Trudy Inst. okean. 49:118-136 '61.
(Azov, Sea of--Fouling of ship bottoms)
(Kerch Strait--Fouling of ship bottoms)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

LEBEDEV, Ye.M.; PERMITIN, Yu.Ye.; KARAYEVA, N.I.

Fouling of plates in the Black Sea. Trudy Inst. okean. 70: 270-275 '63. (MIRA 17:7)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

LEBEDEV, Ye.M.

LAPIN, S.I.; LEBEDEV, Ye.M.

Thoracoplasty with preoperative drainage of cavern; preliminary note. Probl. tub. no.3:39-42 My-Je '54. (MLRA 7:11)

1. Iz Moskovskogo gorodskogo nauchno-issledovatel'skogo tuberkuleznogo instituta (dir. prof. V.L.Eynis, zav. khirurgicheskim otdeleniyem prof. S.I.Lapin)

(COLLAPSE THERAPY,
thoracoplasty with preliminary drainage)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

LEBEDEV, Ye.M.

Pleurectomy with single-stage segmental resection of the lung in chronic empyema with bronchopleural fistula [with summary in French]. Probl.tub. 36 no.6:103-106 '58 (MIRA 11:10)

1. Iz Moskovskoy gorodskoy tsentral'noy klinicheskoy tuberkuleznoy bol'nitsy (glavnyy vrach - prof. V.L. Eynis, nauchnyy rukovoditel' prof. L.K. Bogush).

(TUBERCULOSIS, PULMONARY, compl.
pleural empyema with bronchopleural fistula, surg., pleuropneumonectomy (Rus))
(PLEURA, fistula
bronchopleural in pulm. tuberc. with pleural emyema, surg., pleuropneumonectomy (Rus))
(BRONCHI, fistula
same (Rus))
(PNEUMONECTOMY, in various dis.
pleuropneumonectomy in pulm. tuberc. with pleural empyema with bronchopleural fistula (Rus))

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

BOGUSH, L.K., prof.; LEBEDEV, Ye.M.

Some particular aspects of intubation anesthesia in various resections of the lung in tuberculosis patients. Probl.tub. 37 no.4:30-37 '59. (MIRA 12:10)

1. Iz Khirurgicheskoy kliniki (zav. - chlen-korrespondent AMN SSSR prof.L.K.Bogush) Instituta tuberkuleza AMN SSSR (dir. Z.A.Lebedeva).

(PNEUMONECTOMY, anesth. & analgesia
endotracheal intubation in tuberc. patients (Rus))
(ANESTHESIA, ENDOTHACHEAL
in pneumonectomy for tuberc. (Rus))

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

LEBEDEV, YE. M., CAND MED SCI, "OPERATION OF THORACO-PLASTY WITH PRELIMINARY DRAINAGE OF THE ~~GREAT~~ GIANT AND GIANT CAVERNS IN PATIENTS WITH PULMONARY TUBERCULOSIS." MOSCOW, 1960. (ACAD MED SCI USSR). (KL, 3-61, 233).

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

LEBEDEV, Ye.M.

Shock in anesthesia during pulmonary resection. Eksper. khir. 5 no. 2:51-52 Mr-Ap '60. (MIRA 14:1)
(LUNGS--SURGERY) (SHOCK)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

LEBEDEV, Ye. M.

Thoracoplasty with preliminary drainage of the large and gigantic caverns in pulmonary tuberculosis. Grud. khir. no.5:68-74 '61. (MIRA 15:2)

1. Iz Instituta tuberkuleza (dir. - chlen-korrespondent AMN SSSR prof. N. A. Shmelev, nauchnyy rukovoditel' - prof. S. I. Lapin) AMN SSSR.

(TUBERCULOSIS) (CHEST--SURGERY)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

BOGUSH, L.K., prof.; SEVEROV, V.S., kand.med.nauk; LEBEDEV, Ye.M.

Use of porolon filling in partial resection of the lung in the treatment of pulmonary tuberculosis. Khirurgiia 37 no.1:12-16 Ja '61. (MIRA 14:2)

1. Iz khirugicheskoy kliniki (zav. - chlen-korrespondent AM SSSR L.K. Bogush) Instituta tuberkuleza AMN SSSR.
(LUNGS—SURGERY)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

LEBEDEV, Ye.M.

Use of new anesthesiological instruments in the surgical clinic for pulmonary tuberculosis. Trudy NIIEKHAI no.5:250-252 '61. (MIRA 15:8)

1. Iz khirurgicheskoy kliniki Instituta tuberkuleza AMN SSSR.
(ANESTHESIOLOGY--APPARATUS AND INSTRUMENTS) (TUBERCULOSIS)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

LEBEDEV, Ye.M., kand. med. nauk; ZHILIN, Yu.N.

Modern anesthesia for pulmonary surgery in tuberculosis. Probl. tub. 40 no.6:55-62 '62 (MIRA 16:12)

1. Iz khirurgicheskoy kliniki (zav. khirurgicheskim otdeleniyem - chlen-korrespondent AMN SSSR prof. L.K.Bogush) TSentral'nogo instituta tuberkuleza Ministerstva zdravookhraneniya SSSR (dir. - deystvitel'nyy chlen AMN SSSR prof. N.A. Shmelev).

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

LEBEDEV, Ye.M., kand. med. nauk (Moskva, prosp. Mira, Bezbozhnyy pereulok, d. 19, korp. 18, kv. 529)

Anesthesia with separate intubation of the bronchi in lung surgery. Vestn. khir. Grekov. 90 no.4:82-86 Ap'63 (MIRA 17:2)

1. Iz khirurgicheskoy kliniki (zav. - prof. L.K. Bogush) Instituta tuberkuleza AMN SSSR.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

LEBEDEV, Ye. M.

"Vliyaniye deyatel'nosti cheloveka na rasprostraneniye morskikh organizmov (Chernoye i Azovskoye morya)."

report submitted for 7th Intl Cong, Anthropological & Ethnological Sciences, Moscow, 3-10 Aug 64.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

LEBEDEV, Ye. N.(6); 24(4) PHASE I BOOK EXPLOITATION SOV/3803

Moscow. Vysshaya tekhnicheskaya uchilishcha

Optichestkaye priborostroyeniye; sbornik statey (Optical-Instrument Building; Collection of Articles) Moscow, Oborongiz, 1959. 150 p. (Series: Its [Trudy] 73) Errata slip inserted. 3,150 copies printed.

Eds. (Title page): S. I. Freiberg, Honored Worker in Science and Technology, Professor (Deceased) and L. P. Lazarev, Doctor of Technical Sciences, Professor; Ed. (Inside book): V. M. Tokar', Engineer; Ed. of Publishing House: A. G. Kuznetsova; Tech. Ed.: N. A. Pukhlikova; Managing Ed.: A. S. Laymovskaya, Engineer.

PURPOSE: This collection of articles is intended for scientists and engineers at instrument-making plants and institutes. It will also be of interest to students and teachers concerned with optical instruments.

COVERAGE: This collection of articles on problems in optical instrumentation was compiled by members of the MVTU imeni N. E. Baumana (Moscow Higher Technical School imeni N. E. Bauman). Individual articles discuss problems of designing, analysis and manufacture of optical instruments. Sighting devices in military aircraft are also treated. Research conducted in the school in 1955-1957 is outlined, and theoretical and experimental premises stated. References accompany individual articles.

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31653
S/549/61/000/103/002/005
D033/D112

9.6100 (1057, 1051)

AUTHOR: Lebedev, Ye.N., Candidate of Technical Sciences

TITLE: Optical range simulator

SOURCE: Moscow. Vysshaye tekhnicheskoye uchilishche. [Trudy] no. 103, 1961. Opticheskoye priborostroyeniye, 41-47

TEXT: A range simulating system, used at the MVTU in the manufacture of an optical target simulator for a Link trainer, is described. A lens of constant focal length is used as a system of variable magnification. For correctly simulating the range, the angular size of the target must equal that of the target image on the screen of the trainer. For correct simulation the author shows that the lateral magnification should be inversely proportional to the projection system of the target simulator should be inversely proportional to the target range. Using several formulas, a schematic representation of the optical system of the target simulator is given (Fig. 1). The author obtains the following functions describing the linear movements of the objective and the model as a function of the target range (Fig. 1):

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DC33/D112

Optical range simulator

4

$$S_{obj} = f'_{obj} \left(\frac{D}{k} - 1 \right), \tag{11}$$

$$S'_{obj} = f'_{obj} \left(1 - \frac{k}{D} \right), \tag{12}$$

$$S_{model} = - f'_{obj} \frac{(D-k)^2}{kD} + \Delta , \tag{13}$$

where f'_{obj} is the focal length of the objective, D is the target range and k is a constant equal to $\frac{BR}{l\beta_2}$, where B is the base of the target, R is the radius of a spherical screen, l is the base of the projected model of the target and β is the lateral magnification of the optical system of the

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030008-0

Optical range simulator

target simulator. On the basis of the above calculations, the optical target simulator was designed. The model and the objective are moved by d.c. potentiometric servosystems. Two systems were used, one with a single actuator (Fig. 4) and the other with two actuators. The mean quadratic deviation was 2.5-3.5% in both cases; however, when only one actuating motor was used, the image quality was better due to more accurate coordination of the relative positions of model and objective. Both systems are described and illustrated. There are 4 figures.

4

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DC33/D112

Optical range simulator

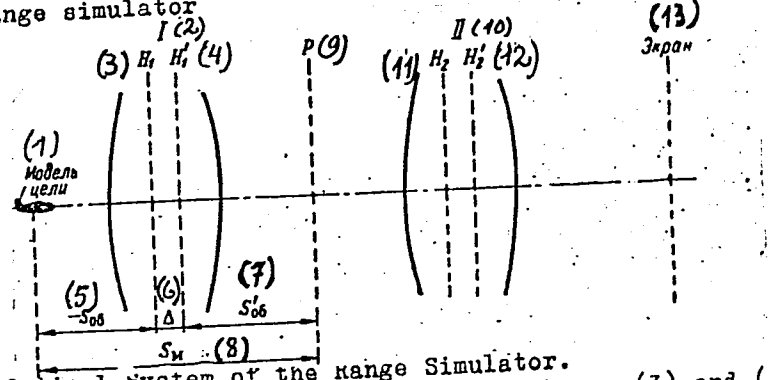

Fig. 1. Optical System of the Range Simulator.
Legend: (1)--model of the target; (2)--first lens; (3) and (4)--main planes of the first lens; (5)--distance between the target model and the first main plane of the first lens; (6)--distance between the main planes of the first lens; (7)--distance between the second main plane of the first lens and the image of the target model projected on to the plane (9); (8)--distance between the target model and its image in the plane (9); (9)--the plane onto which the first lens projects the image of the target model; (10)--2nd lens; (11) and (12)--main planes of the second lens; (13)--spherical screen.

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Optical range simulator

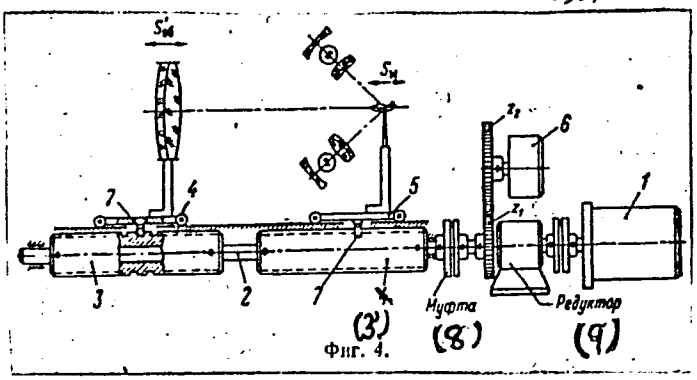

Fig. 4. Block Diagram of the Variation of the Optical Range Simulator with a Single Actuating Motor. Legend: 1--motor; 2--common shaft; 3 and 3'--threaded cams fixed on the shaft [Abstracter's note: "3'" appears erroneously in diagram as "4"]; 4 and 5--carriages; 6--potentiometer; 7-- dog; 8--clutch; 9;;reducing gear

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9,6100(1051,1057)

AUTHOR: Lebedev, Ye.N., Candidate of Technical Sciences

TITLE: A correcting unit for an optical target simulator

SOURCE: Moscow. Vyssheye tekhnicheskoye uchilishche. [Trudy] no. 103, 1961. Opticheskoye priborostroyeniye, 48-62

TEXT: The author describes a two-component correcting unit to be used in optical target simulators (Fig. 1). The device, developed by the MVTU, compensates for the blurring of the image and changes in the image magnification, both faults being caused by the eccentric position of the reflecting mirror. Formulae are developed for the correct calculation of the parameters and ratios of such optical correcting units. The transversal magnification of the optical system of the corrector [Abstracter's note: All symbols not explained in the text are to be found in Figs. 1 and 2], equals

$$(\beta_{cor}) = \frac{1}{C S_1 + D} \quad ,$$

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where $C = \varphi_1 + \varphi_2 - d\varphi_1\varphi_2$; $\varphi_1 = \frac{1}{f_1'}$; f_1' --focal length of the first main plane (H_1H_1') of the optical components of the corrector; $\varphi_2 = \frac{1}{f_2'}$; f_2' -- focal length of the second main plane (H_2H_2') of the optical components of the corrector; d -- distance between the 2 main planes; S_1 -- distance between the plane of the object (target) and the plane H_1H_1'; $D = 1 - d\varphi_2$. The distance S_2' is equal to $\frac{AS_1+B}{CS_1+D} = \beta_{cor}(AS_1+B)$; where $A=1-d\varphi_1$, $B=-d$. The distance $R' = \sqrt{R^2 + h^2 - 2Rh\cos\varphi_v'}$ where [illegible] the screen sphere; φ_v' -- vertical viewing angle of the target and h is the displacement of the center of suspension of the panoramic mirror in respect to the center of the screen sphere. The distance S_1 (from the target to

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the plane H_1H_1') is equal to

$$-\frac{a_1+b_1R'}{2} \pm \sqrt{\frac{(a_1+b_1R')^2}{4}-(c_1+d_1R')}, \text{ where } a_1 = \frac{2(\beta_{cor}^{-1})+\varphi_{2L}}{\beta_{cor}\varphi_1+\varphi_2};$$

$$b_1 = \frac{\varphi_2}{\beta_{cor}\varphi_1+\varphi_2}; \quad c_1 = \frac{(\beta_{cor}^{-1})^2+\beta_{cor}\varphi_{2L}}{\beta_{cor}\varphi_1(\beta_{cor}\varphi_1+\varphi_2)};$$

$$d_1 = \frac{\varphi_2}{\varphi_1(\beta_{cor}\varphi_1+\varphi_2)}.$$

From these basic equations all other relationships between the optical powers of the corrector's components are developed. Two sets of curves for different values of β_{cor} are given. The basic formula expressing S_1' as

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a function of the angle φ'_v is

$$S_1 = -\frac{a_1+b_1\sqrt{R^2+h^2-2Rh\ \sin\varphi'_v}}{2} \pm$$

$$\pm\sqrt{\left[\frac{1}{2}(a_1+b_1)\sqrt{R^2+h^2-2Rh\sin\varphi'_v}\right]^2-(c_1+d_1\sqrt{R^2+h^2-2Rh\sin\varphi'_v})}.$$

The latter formula and the equations $d - S_1 = L-t$, $R' = S'_2-t$,

$d = \frac{\beta_{cor}\ S_1\ (\varphi_1+\varphi_2)\ +\beta_{cor}\ -1}{\beta_{cor}\varphi_2\ \ (\varphi_1\ S_1\ +1)}$ can be used to calculate other

relationships such as $t = f_2(\varphi'_v)$; $S'_2 = f_3(\varphi'_v)$, and $d=f_4(\varphi'_v)$. In practice,

the graphical-analytical method of calculating these parameters is recommended.

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whereby S_1, d, t, S_2', in that order, should be calculated as functions of φ_v'. A table shows the values of d and t corresponding to 16 types of design with varying φ_1 and φ_2 values. The table covers the values of φ_v' within the range - 90° to + 90°, R being 1250 mm, L = 375 mm, β_{cor} = -6.24 and h/R = 0.4. The same values are shown graphically. The following conclusions are drawn: The character of the curves $S_1 = f_1(\varphi_v')$ only slightly deviates from the rectilinear law, within a fairly wide range of variations of the φ_v' angle. The intersection point of the curves with the axis of the abscissas depends only on the φ_2 value. The inclination of the curves toward the axis of the abscissas markedly depends on the φ_1 value. Graphs show variations in the relative error $\frac{\Delta\beta_{cor}}{\beta_{cor}}$ as a function of the angle φ_v' for 2 design variations. The analysis of the graphs proves that

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by correctly selecting the a_0 and b_0 coefficients, sufficiently low errors can be obtained in the magnification of the corrector within a given range of variations of φ'_v, where $S_1 = a_0 + b_0 \varphi'_v$. Equations are developed for solving the inverse problem of determining the optical powers of the φ_1 and φ_2 components of the corrector. L.P. Lazarev (Sb. trudov MVTU no. 57, Oborongiz, 1955) is mentioned for his study dealing with the calculation of basic parameters of the flight of a fighter attacking a target flying in a straight line. There are 7 figures, 2 tables, and 1 Soviet reference.

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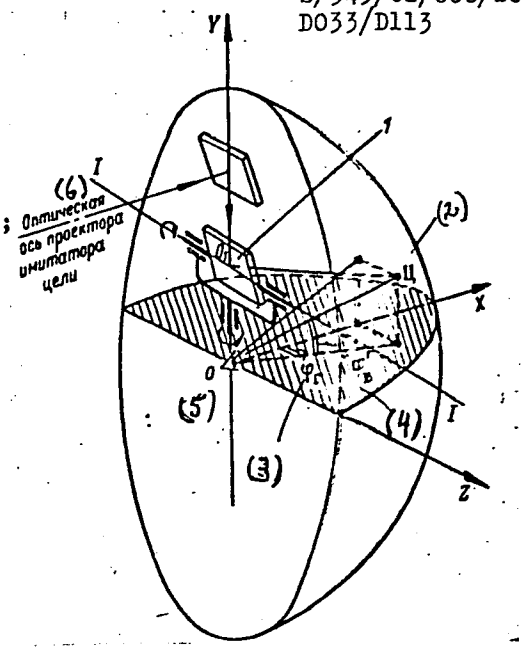

Fig.1. The spherical screen in a target simulator provided with an optical corrector
Legend:(1)-- mirror; (2)-- image of the simulated target; (3)-- φ_h-- horizontal viewing angle; (4)-- φ_v -- vertical viewing angle; (5)-- eye; (6)-- optical axis of the projector of the target simulator

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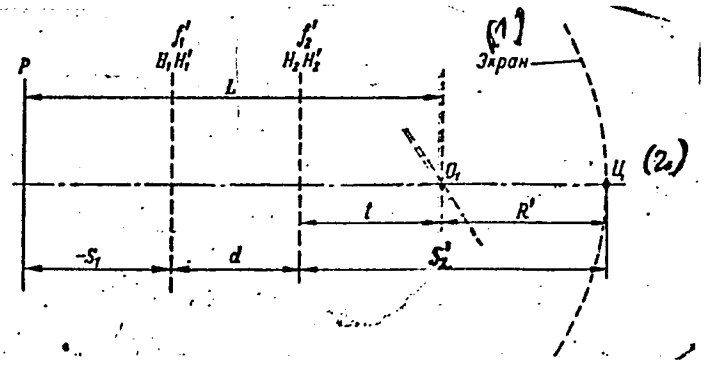

Fig. 2. The basic scheme of a 2-component optical corrector to be used in the arrangement shown by Fig.1.

Legend: (1)-- spherical screen; (2)-- image of the simulated target

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LEBEDEV, Ye.N., kapitan 1-go ranga zapasa

War with German submarines in the wide blockade zone of the Northern and Norwegian seas. Mor.sbor. 46 no.5:28-34 My '63. (MIRA 16:4)
(World War, 1939-1945--Naval operations--Submarine)

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